#### **AUSTRALIA**

#### Patents Act 1990

IN THE MATTER OF US Patent Application No. 09/446,109 by The University of Queensland

#### **EXHIBIT SMT-8**

This is Exhibit SMT-8 referred to in the Statutory Declaration by Stephen Maxwell Taylor

dated 12 MAY 2004

Before me:

A person empowered to witness Statutory
Declarations under the laws of the Queensland,
Commonwealth of Australia

#### PRM-01-03

PMX53 in Subjects with Psoriasis Open Label Safety and Tolerability Study of Topical

### Primary Objective

Evaluate the safety and tolerability of topically administered PMX53 twice daily for 56 days to target lesions of subjects with psoriasis

## Secondary Objective

Evaluate the effect of topical administration of PMX53 on disease status of target lesion

- Single dose application in healthy volunteers
- 3 subjects, single application
- Multiple dose application in healthy volunteers
- 3 subjects, twice daily 4 days.
- Multiple dose application in psoriasis patients
- PMX53 Gel (10mg/ml) will be applied to target lesion twice daily for 56 days

- 10 subjects (for main part of study)
- Mild to moderate chronic plaque type psoriasis, for at least one year
- Target lesion must have
- Severity Index score (LPSI) of 5-8
- Area of 10 100cm<sup>2</sup>;
- Stable in both extent and severity for two weeks prior to treatment

Definition LPSI: summed score for

- erythema, induration and desquamation of target lesion,
- scale of 0 12
- higher score = more severe disease
- decrease in LPSI score = improvement

## Safety and Tolerability

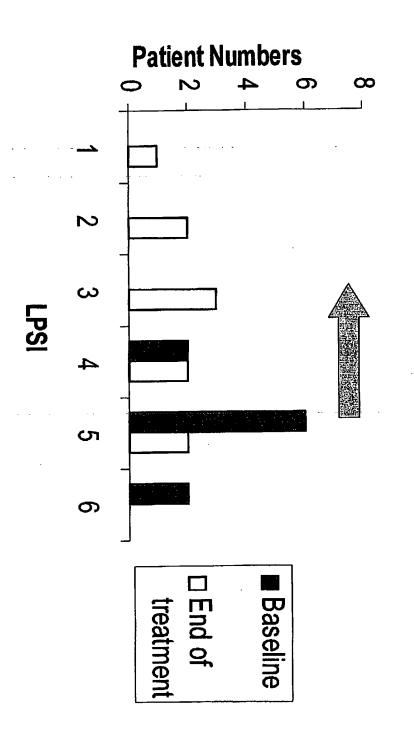
- No Serious Adverse Effects
- 16 AE's reported
- Ranging mild to severe (one subject had severe cold and sore throat)
- All classified as not related or unlikely to be related
- Include back pain, headache, sinusitis, head cold, common cold, inflamed psoriasis (1 subject)

### Disease Assessment

- study 9/10 patients had improved LPSI score by the end of
- 1 patient showed improvement of 4 points,
- 4 patients improved by 2 points, and
- 3 patients improved by 1 point
- 8 patients reported improvement in their subjective assessment of the psoriatic lesion

## Psoriasis LPSI scores

Lower LPSI scores indicate improvement



## **Psoriasis Trial Summary**

- PMX53 Gel (10mg/ml) is safe and tolerable over 56 days
- Data indicates a moderate clinical response

## RA Trial Interim Analysis

A double-blind study evaluating the safety of PMX53 in comparison to placebo in patients with active rheumatoid arthritis

## RA Trial Objectives

#### Primary objective:

dosing Evaluate the safety and tolerability over 28 days ( recall Phase la single dose safety study)

### Secondary objective:

chronic dose setting Assess pharmacokinetics of PMX53 in acute and

### Assess biological activity

- synovial biopsy tissue assessment (only at end of study)
- Biochemical markers CRP, ESR,
- Standard disease measures
- Physician assessment of disease
- Patient self assessment of disease, health and pain

## RA Trial Protocol

- Randomised, double blind and placebo controlled
- 10 patients with active rheumatoid arthritis on methotrexate for 3 months and a stable dose (5-30 mg/week) for at least one month

Active disease defined as
= 6 tender and = 6 swollen joints AND ESR = 28mm/hr
or CRP = 10mg/L
or morning stiffness = 45 minutes

- Daily oral dose of 8 mg/kg for 28 days (recall Phase la max single dose 10 mg/kg)
- Safety evaluation: continuous throughout study
- PK profile Day 1 & Day 27 trough levels days 7, 14

# PMX53 was Safe and Tolerable

## • PMX53 group (n = 7)

- Total No. AEs = 9 across all patients (3 patients no AE's)
- 2 patients had "moderate" severity AEs both "unlikely" relationship
- 4 patients had 7 "mild" severity AEs, 1/7 classed as "possibly" related

## • PLACEBO group (n = 3)

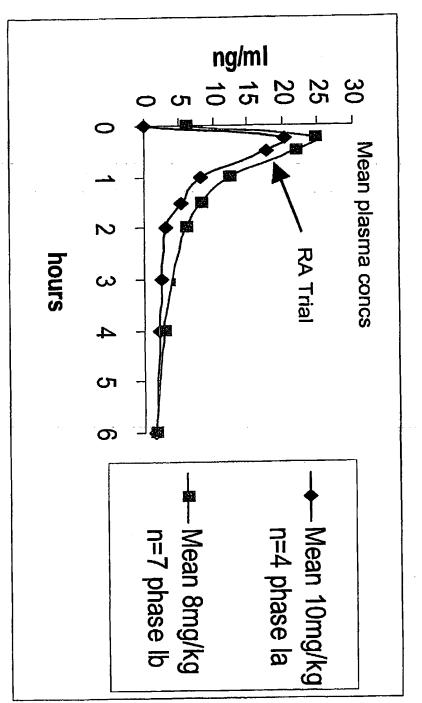
- Total No. AEs = 13
- All mild, 6/13 classed as "possibly" related to drug
- Primary Objective of Study likely to be achieved

## PMX 53 Pharmacokinetics

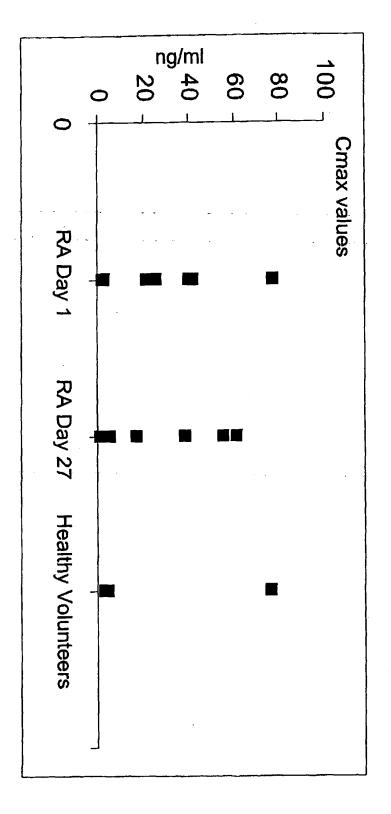
- PK profiles similar to that seen in healthy volunteers
- Blood levels typically higher
- with Cmax ranging from 1 40 ng/ml Observe same wide variation between subjects
- No accumulation seen with chronic dosing

## PMX 53 Pharmacokinetics

PK Profiles similar across studies



#### PMX 53 Pharmacokinetics Range Cmax values



Wide interpatient variability / intrapatient consistent

# RA Trial Disease Measures

- Patients with elevated baseline CRP
- 4/4 subjects on PMX53 showed decrease
- 1/1 subjects on placebo showed increase

#### - ESR

No change observed

#### Clinical

No trends observed in tender and swollen joints

# RA Trial Disease Measures

- Patient Assessment
- Patient Global Assessment of disease (VAS).
- PMX 53 all patients showed an <u>increase</u> in assessment with 2 showing = 10 points improvement
- All placebos showed worsening of at least 10 points
- Patient Assessment of Health (VAS)
- PMX53 recorded <u>improvement</u> in 3/7 patients
- Placebo recorded worsening in 3/3 patients
- VAS pain score
- PMX53 3/7 (42%) less pain 4/7 unchanged
   Placebo 1/3 (33%) less pain 2/3 worsened
- Physician Assessment (VAS)
- PMX53 3/7 (42%) improved and 4/7 unchanged
- Placebo 1/3 (33%) improved 2/3 worsened

## RA Trial Sub-study

- Ex-vivo Blood Study ("Reedquist Study")
- Analysis of Leukocyte Function and Survival Blood samples taken from all patients at
- Baseline, post 6hr, trough day 7, 14 and Day 27
- Large inter- and intra-patient variation in control data observed in placebo treated patients
- Against this background variability it is impossible to interpret data

## RA Trial Interim Results Summary

- No safety issues to hinder continuation of study
- Highly likely to reach primary endpoint of safe and tolerable dosing over 28
- PK profile replicates phase I healthy volunteer study
- Increased frequency of higher blood plasma levels
- Large interpatient variation
- Low intrapatient variation
- Some disease assessments showing moderate positive trends
- Ex-vivo blood analysis disappointing due to technical issues
- Key biological markers from synovial tissue biopsy to be analyzed at end of study

## RA Trial Progress

- currently on study A total of 14 subjects have completed treatment and 1 is
- A further 4 patients identified for study and awaiting prescreening
- Aiming to recruit a total of at least 20 subjects as fast as possible

# ALTERNATE OPTION cont...

Subcutaneous dosing with PMX53

If Phase I s.c study positive

- Takes oral delivery form off critical path

Provides licensee clear path for development

#### Downside

episodes limit potential clinical use to short term indications eg IBD relapse, treatment of acute inflammatory

# ALTERNATE OPTION...

- Subcutaneous dosing with PMX53
- subcutaneous preclinical data shows sustained blood levels over many
- Preclinical rats and dogs data demonstrate efficacy at dose levels of 0.3 mg/kg
- Positive for COGS issue
- Work up to human phase I study to show:
- Sustained blood levels
- .. addresses "bioavailability/transient" PK issue
- If available assess also using biomarker assessment

# PLAN GOING FORWARD...

# Continue to develop Biomarker for PMX53

- Option 1 Oxidative Burst Assay
- Questions regarding sufficient sensitivity to detect activity?

Inter- and Intra-assay data adequate to show effect?

- Assay work ongoing at Promics labs
- Option 2 LPS Model
- Clinical trials using LPS challenge have been conducted
- Requires validation in preclinical before assessing healthy volunteer study
- Ongoing assessment at Promics labs

# Two major challenges remain...

- of transient PK profile block of C5a receptors with PMX53 in face Demonstration of adequate and sustained
- If +ve disease efficacy...resolved v
- If disease efficacy equivocal ....need biomarker data

## Estimation of Cost of Goods

- Highly dependent on dose required
- Use biomarker to estimate efficacious doses required

## RA Trial Progress

- A total of 14 subjects have completed treatment and 1 is currently on study
- prescreening A further 4 patients identified for study and awaiting
- possible Aiming to recruit a total of at least 20 subjects as fast as

#### RA Trial Interim Results Summary

- No safety issues to hinder continuation of study
- Highly likely to reach primary endpoint of safe and tolerable dosing over 28 days
- PK profile replicates phase I healthy volunteer study
- Increased frequency of higher blood plasma levels
- Large interpatient variation
- Low intrapatient variation
- Some disease assessments showing moderate positive trends
- Ex-vivo blood analysis disappointing due to technical issues
- Key biological markers from synovial tissue biopsy to be analyzed at end of study

## RA Trial Sub-study

- Ex-vivo Blood Study ("Reedquist Study")
- Analysis of Leukocyte Function and Survival
- Blood samples taken from all patients at
- Baseline, post 6hr, trough day 7, 14 and Day 27
- Large inter- and intra-patient variation in control data observed in placebo treated patients
- Against this background variability it is impossible to interpret data

# RA Trial Disease Measures

- Patient Assessment
- Patient Global Assessment of disease (VAS)
- PMX 53 all patients showed an increase in assessment with 2 showing
- All placebos showed worsening of at least 10 points = 10 points improvement
- Patient Assessment of Health (VAS)
- PMX53 recorded improvement in 3/7 patients
- Placebo recorded worsening in 3/3 patients
- VAS pain score
- PMX53 3/7 (42%) less pain 4/7 unchangedPlacebo 1/3 (33%) less pain 2/3 worsened
- Physician Assessment (VAS)
- PMX53 3/7 (42%) improved and 4/7 unchanged
- Placebo 1/3 (33%) improved 2/3 worsened

# RA Trial Disease Measures

- Patients with elevated baseline CRP
- 4/4 subjects on PMX53 showed decrease
- 1/1 subjects on placebo showed increase

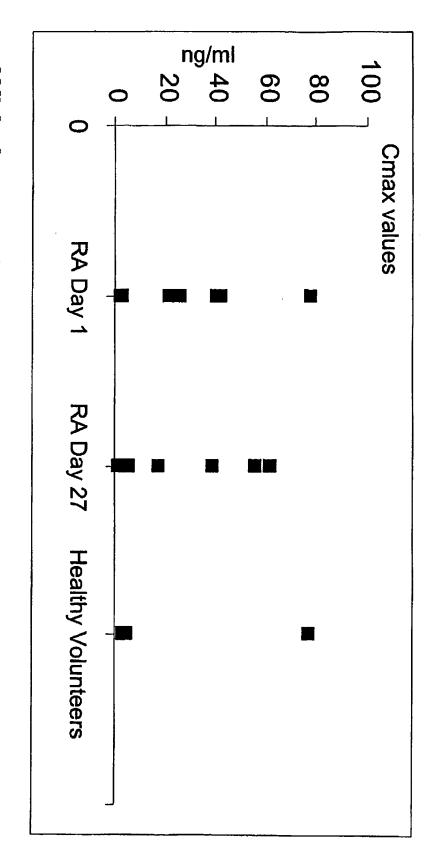
#### - ESR

No change observed

#### Clinical

No trends observed in tender and swollen joints

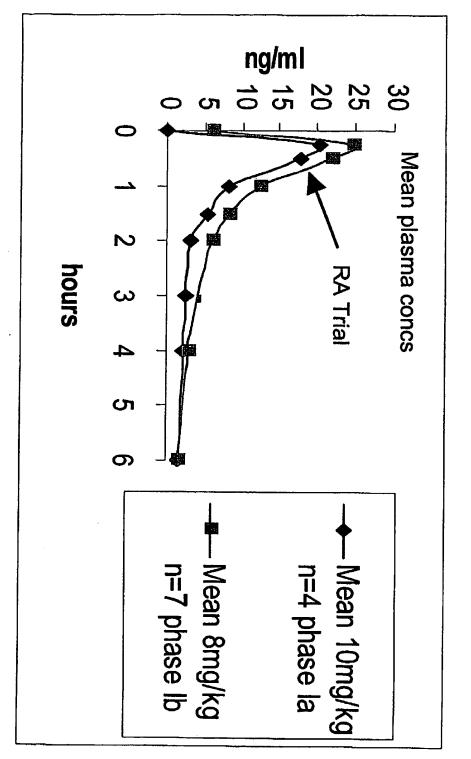
#### PMX 53 Pharmacokinetics Range Cmax values



Wide interpatient variability / intrapatient consistent

# PMX 53 Pharmacokinetics

PK Profiles similar across studies



# PMX 53 Pharmacokinetics

- PK profiles similar to that seen in healthy volunteers
- Blood levels typically higher
- with Cmax ranging from 1 40 ng/ml Observe same wide variation between subjects
- No accumulation seen with chronic dosing

# PMX53 was Safe and Tolerable

## PMX53 group (n = 7)

- Total No. AEs = 9 across all patients (3 patients no AE's)
- 4 patients had 7 "mild" severity AEs, 1/7 classed as "possibly" related

2 patients had "moderate" severity AEs - both "unlikely" relationship

## PLACEBO group (n = 3)

- Total No. AEs = 13
- All mild, 6/13 classed as "possibly" related to drug
- \* Primary Objective of Study likely to be achieved

## RA Trial Protocol

- Randomised, double blind and placebo controlled
- 10 patients with active rheumatoid arthritis on methotrexate for 3 months and a stable dose (5-30 mg/week) for at least one month

```
Active disease defined as
= 6 tender and = 6 swollen joints AND ESR = 28mm/hr
or CRP = 10mg/L
or morning stiffness = 45 minutes
```

- Daily oral dose of 8 mg/kg for 28 days (recall Phase la max single dose 10 mg/kg)
- Safety evaluation: continuous throughout study
- PK profile Day 1 & Day 27 trough levels days 7, 14

## RA Trial Objectives

#### Primary objective:

dosing Evaluate the safety and tolerability over 28 days (recall Phase la single dose safety study)

.

## Secondary objective:

## chronic dose setting Assess pharmacokinetics of PMX53 in acute and

## Assess biological activity

- synovial biopsy tissue assessment (only at end of study)
- Biochemical markers CRP, ESR,
- Standard disease measures
- Physician assessment of disease
- Patient self assessment of disease, health and pain

## RA Trial Interim Analysis

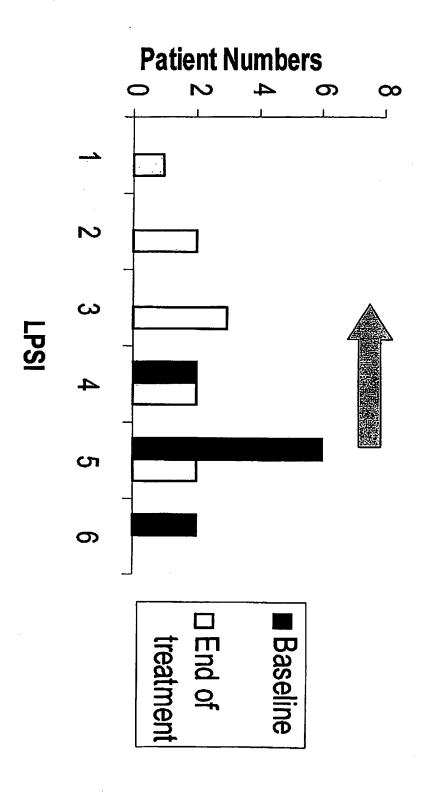
A double-blind study evaluating the safety of PMX53 in comparison to placebo in patients with active rheumatoid arthritis

## Psoriasis Trial Summary

- PMX53 Gel (10mg/ml) is safe and tolerable over 56 days
- Data indicates a moderate clinical response

## Psoriasis LPSI scores

Lower LPSI scores indicate improvement



### Disease Assessment

- study 9/10 patients had improved LPSI score by the end of
- 1 patient showed improvement of 4 points,
- 4 patients improved by 2 points, and
- 3 patients improved by 1 point
- assessment of the psoriatic lesion 8 patients reported improvement in their subjective

### Safety and Tolerability

- No Serious Adverse Effects
- 16 AE's reported
- Ranging mild to severe (one subject had severe cold and sore throat)
- All classified as not related or unlikely to be related
- Include back pain, headache, sinusitis, head cold, common cold, inflamed psoriasis (1 subject)

- 10 subjects (for main part of study)
- Mild to moderate chronic plaque type psoriasis, for at least one year
- Target lesion must have
- Severity Index score (LPSI) of 5-8
- Area of 10 100cm<sup>2</sup>;
- Stable in both extent and severity for two weeks prior to treatment

### Definition LPSI: summed score for

- erythema, induration and desquamation of target lesion,
- scale of 0 12
- higher score = more severe disease
- decrease in LPSI score = improvement

- Single dose application in healthy volunteers
- 3 subjects, single application
- Multiple dose application in healthy volunteers
- 3 subjects, twice daily 4 days
- Multiple dose application in psoriasis patients PMX53 Gel (10mg/ml) will be applied to target lesion twice daily for 56 days

### Primary Objective

administered PMX53 twice daily for 56 days to target Evaluate the safety and tolerability of topically lesions of subjects with psoriasis

### Secondary Objective

Evaluate the effect of topical administration of PMX53 on disease status of target lesion

#### PRM-01-03

PMX53 in Subjects with Psoriasis Tolerability Study of Topical Open Label Safety and

### PROMICS DEVELOPMENT REPORT – February 2004

- PRM-01-03 Psoriasis Study Results
- PRM-01-02 RA Interim Data

Update on Technology Development Plan

#### March 2004 Development Report

#### **Arthritis Trial**

- Recruitment
- 16 are currently on study
- 1 subject awaiting screening results
- 2 further subjects identified as possibility for screening
- Timelines
- Site committed to complete treatment of all subjects (approximately 20) by end May
- Synovial tissue processing to be completed within subsequent two months
- Plan to visit site in the first week of August to discuss interpretation of unblinded data with investigator
- Full clinical data planned for August board meeting

## Formulation of oral dose

- PMX53 the development of a formulated oral dose for formulation have been approached regarding Four companies specialising in solid dose
- work that will attempt to: Proposals have been requested for formulation
- Provide consistent blood levels and minimise subject to subject variation
- Maximise stomach absorption and bioavailability
- Costing, timelines and recommendations for this contract development to be prepared over next

## Biomarker Development

#### Oxidative Burst

- Promics laboratory have conducted assay validation
- assay to assay variation Data indicates that the assay continues to have considerable
- Based on these results it is recommended that the use and PMX53 is developed investigation of this biomarker in a healthy volunteer study be postponed at least till an improved or alternative formulation of

#### Alternative LPS model

- cytokine measurements studies to assess activity of new drugs, using clinical and/or There is precedent for use of this model in healthy volunteer
- Promics laboratory is investigating viability of this model with PMX53 over the next few months in rats and dogs

# Additional development priorities

- addressing Cost of Goods issues PMX53 in China and India with the purpose of Investigate the possibility of alternative manufacturers for
- will be tested in Promics laboratories to address injection site toxicity observed in safety and toxicity studies New formulations for subcutaneous delivery of PMX53
- Subcutaneous delivery may present an alternative route of appropriate for treatment of some acute inflammatory disorders. administration and development by a potential purchaser and be This route of administration may also address bioavailability and COGs issues